



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,808	10/01/2003	Koichi Otsuki	Q7778	8787
23373 7590 06/12/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER FIDLER, SHELBY LEE	
			ART UNIT 2861	PAPER NUMBER
			MAIL DATE 06/12/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/674,808

Applicant(s)

OTSUKI, KOICHI

Examiner

Shelby Fidler

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/9/2007 has been entered.

Specification

The disclosure is objected to because of the following informalities: page 13 of the instant specification contains the recitation "The print head unit 60 includes the ink cartridge mount unit 62 and the print head unit 28" on line 16-17. Please change "the print head unit 28" to "the print head 28" to clarify that reference numeral 28 designates a different element from reference numeral 62. Appropriate correction is required.

Claim Objections

Claim 3 recites the limitation "the position adjustment value storage" in lines 5-6 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 is objected to because of the following informalities: please change the recitation of "the test pattern generation unit" to "the test pattern generator" to clearly define a proper antecedent basis. Appropriate correction is required.

Art Unit: 2861

Claim 17 recites the limitation "the computer" in line 5 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 9, 17, and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This claim recites a "non-exchangeable print head," which cannot be found as an express or inherent teaching in the original disclosure of the invention. Examiner notes pages 6 and 13 of the instant specification, which teach that the print head unit 60 includes an ink cartridge mount unit (62) and a print head (28). However, Examiner has not found a section within the original disclosure that teaches the print head unit 60 or the print head 28 being non-exchangeable. It is Examiner's stance that any element in a printer (especially the print head) is capable of being exchanged. For the purpose of examination, the claimed "non-exchangeable print head" will be examined as a "print head which is fixed to the printer" as opposed to a print head that is an integral element of exchangeable ink tanks.

Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described

Art Unit: 2861

in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This claim recites the limitation that the computer program causes the computer to perform the step of enabling a first ink set or a second ink set, "wherein enabling a first ink set or a second ink set to be selectably mounted comprises replacing at least a first ink tank of the first ink set with a second ink tank of a second ink set, thereby changing from the first ink set to the second ink set without replacing the print head, wherein the second ink tank of the second ink set contains ink having the same hue but different density as ink of the first ink tank of the first ink set." However, Examiner cannot find a teaching in the original disclosure that shows how the computer program causes "the computer" to perform this claimed step.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 17-20, 22, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Nunokawa et al. (US 6962404 B2).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C.

Art Unit: 2861

102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1 and 18:

Nunokawa et al. disclose a bi-directional printing method using a printing apparatus, the printing method comprising the steps of:

providing a print head which is fixed to the printing apparatus (col. 8, lines 30-31), the print head comprising a plurality of nozzles (col. 9, lines 17-19);

selectably mounting, on the print head, a first ink set (K, C, M, Y) or a second ink set (K, C, LC, M, LM, Y, DY), having mutually different combinations of ink, wherein the first ink set and the second ink set are associated with a first bi-directional print mode (four-color/high speed print mode) and a second bi-directional print mode (seven-color/high quality print mode), respectively (col. 10, lines 39-56);

providing a plurality of position adjustment values (correction values) including a first position adjustment value for the first bi-directional print mode (col. 15, lines 24-33), and a second position adjustment value for the second bi-directional print mode (col. 15, lines 34-43) as position adjustment values for reducing misalignments of dot forming positions on forward passes and backward passes of main scanning (col. 12, lines 41-47);

selecting one of the first bi-directional print mode that selectively uses inks included in the first ink set, and the second bi-directional print mode which selectively uses inks included in the second ink set, so that a combination of inks used in the first bi-directional print mode is

Art Unit: 2861

different from a combination of inks used in the second bi-directional print mode (col. 11, lines 31-44);

selecting a position adjustment value for the selected bi-directional print mode out of the plurality of position adjustment values (col. 15, lines 44-50); and

adjusting dot forming positions along the main scanning direction during the bi-directional printing based on the selected position adjustment value (col. 15, lines 44-50).

wherein selectably mounting the first ink set or the second ink set comprises replacing at least a first ink tank of the first ink set with a second ink tank of the second ink set, thereby changing from the first ink set to the second ink set without replacing the print head (col. 13, lines 1-7);

wherein the second ink tank of the second ink set contains ink having the same hue but different density as ink of the first ink tank of the first ink set (col. 13, lines 1-7).

Regarding claims 2 and 19:

Nunokawa et al. also disclose that the first bi-directional print mode and the second bi-directional print mode are bi-directional color print modes (col. 10, lines 34-39).

Regarding claim 3:

Nunokawa et al. also disclose the steps of:

generating a test pattern to be printed, wherein the test pattern can be used to test misalignments of dot forming positions (col. 13, lines 54-67); and

allowing a user to set a position adjustment value that is to be stored in a position adjustment value storage (EEPROM 46) according to a printed result of the test pattern (e.g. col. 15, lines 24-33),

Art Unit: 2861

wherein the test pattern is suitable for one of the first bi-directional print mode and the second bi-directional print mode (col. 15, lines 12-19).

Regarding claims 5 and 22:

Nunokawa et al. also disclose that each ink tank of the first ink set and the second ink set is contained in an ink cartridge (col. 9, lines 11-15), wherein each ink cartridge comprises at least one ink tank (col. 9, lines 11-15) and a memory (ROM 14) that stores information used to set the position adjustment value (col. 11, lines 3-17, 31-44 and col. 13, lines 54-67);

wherein the method further comprises the step of setting the position adjustment value based on the information read out from the memory (col. 11, lines 31-44 and col. 13, lines 54-67 show that the information read from memory is used to selectively determine the print mode, which is then used to determine the correction value).

Regarding claim 17:

Nunokawa et al. disclose that the method of claim 1 may be implemented by a computer program product comprising:

a computer readable medium (col. 17, lines 20-29); and

a computer program stored on the computer readable medium (col. 17, lines 20-29).

Regarding claim 20:

Nunokawa et al. also disclose that the step of selecting the first position adjustment value or the second position adjustment value comprises:

printing a test pattern using the first plurality of position adjustment values or the second plurality of position adjustment values (e.g. col. 15, lines 24-29); and

selecting the first position adjustment value or the second position adjustment value according to the printed test pattern (e.g. col. 15, lines 29-33).

Art Unit: 2861

Regarding claim 24:

Nunokawa et al. disclose all claimed limitations except that the step of selecting the first position adjustment value or the second position adjustment value comprises:

selecting the second position adjustment value when no first position adjustment value is stored; and selecting the first position adjustment value when no second position adjustment value is stored (col. 15, lines 29-33 and 39-43 show the procedure for selecting first and second position adjustment values, while col. 15, lines 44-50 teaches storing those values. Therefore, when the position adjustment values were selected, neither the first position adjustment value nor the second position adjustment value had been stored).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al. (US 6532026 B2).

Regarding claim 9:

Takahashi et al. disclose a printing apparatus (Fig. 5) comprising a print head (print head 1) that has a plurality of nozzle groups each including a plurality of nozzles for ejecting an identical color (col. 16, lines 31-40), the printing apparatus having a bi-directional printing function of performing main scanning for moving the print head relative to a printing medium (col. 1, lines 13-19) and sub scanning for moving the print head relative to the printing medium

Art Unit: 2861

in a direction that transverses a direction of the main scanning (col. 1, lines 49-57), and ejecting ink from nozzles onto the printing medium on each of forward passes and backward passes of the main scanning of bi-directional movement to form dots on the printing medium (col. 1, lines 13-19), the printing apparatus comprising:

- a position adjustment value storage (memory 107) that stores a position adjustment value (adjustment data) for reducing misalignments of dot forming positions between forward passes and backward passes of main scanning (col. 17, lines 32-36);

- a position adjuster (controller 100) that adjusts dot forming positions along the main scanning direction during the bi-directional printing based on the position adjustment value stored in the position adjustment storage (e.g. flowchart of Fig. 16);

- a print head (print head 1) which is fixed to the printer (col. 15, lines 8-11) comprising an ink cartridge mount (head cartridge 1000) that can mount one or more ink cartridges thereon (col. 15, lines 50-55), the one or more ink cartridges having ink tanks (ink tanks 15 and 16) each containing ink to be supplied to each of the nozzle groups (col. 15, lines 50-55),

- the printing apparatus can use a first ink set (head1 from col. 42, lines 52-56 uses black, cyan, magenta, and yellow inks, col. 15, lines 50-55) and a second ink set (head2 uses black, light cyan, and light magenta, col. 42, lines 61-63) that have mutually different combinations of available inks (only head2 uses LC and LM; col. 42, lines 52-66);

- the printing apparatus can use a first bi-directional print mode (print mode using head1; col. 42, lines 52-54) that selectively uses inks included in the first ink set (col. 16, lines 1-7) and a second bi-directional print mode (print mode using head2, col. 16, lines 1-7) that selectively uses inks included in the second ink set (col. 42, lines 61-63) so that a combination of inks used in the

Art Unit: 2861

first bi-directional print mode is different from a combination of inks used in the second bi-directional print mode (only head2 uses LC and LM; col. 42, lines 52-66);

the position adjustment value storage (107) can store a plurality of position adjustment values (col. 17, lines 32-36) including a first position adjustment value for the first bi-directional print mode (col. 42, lines 55-61) and a second position adjustment value for the second bi-directional print mode (col. 42, line 61 - col. 43, line 5); and

the position adjustment unit (100) selects a position adjustment value for a bi-directional print mode used by the printing apparatus out of the plurality of position adjustment values to adjust dot forming positions (col. 43, lines 33-41).

Examiner notes the additional limitation that a first ink tank of the first ink set is replaceable with a second ink tank of the second ink set, thereby changing from the first ink set to the second ink set without replacing the print head which is fixed to the printer, wherein the second ink tank of the second ink set contains ink having the same hue but different density as ink of the first ink tank of the first ink set. However, because the printing apparatus of Takahashi et al. can (is capable of) using such a first ink set or second ink set, Takahashi et al. discloses all claimed limitations.

Regarding claim 10:

Takahashi et al. also disclose that the first bi-directional print mode and the second bi-directional print mode are bi-directional color print modes (col. 16, lines 4-7, 61-63).

Regarding claim 11:

Takahashi et al. also disclose a test pattern generator (printer driver) that generates a test pattern (adjustment pattern) to be printed (col. 45, lines 26-31 and col. 49, lines 41-49);

wherein the test pattern can be used to test misalignments of the dot forming positions (col. 45, lines 32-35); and

a position adjustment value setter (e.g. menu) that allows a user to set the position adjustment to be stored in the position adjustment value storage (col. 45, lines 48-52), wherein the test pattern generation unit can generate a test pattern suitable for the first bi-directional print mode and a test pattern suitable for the second bi-directional print mode (col. 43, lines 23-28).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 21 are rejected under 35 U.S.C. 103(a) as being obvious over Nunokawa et al. (US 6962404 B2) in view of Ohtsuka et al. (US 6145950).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference

Art Unit: 2861

under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claims 4 and 21:

Nunokawa et al. disclose all the limitations of claims 3 and 18, as well as the limitations that that each ink tank of the first ink set and the second ink set is contained in an ink cartridge (col. 9, lines 11-15), wherein each ink cartridge comprises at least one ink tank (col. 9, lines 11-15) and a memory (ROM 14) that stores information including types of contained inks (col. 11, lines 3-17); and generating a test pattern that is suitable for the selected bi-directional print mode (col. 15, lines 12-23).

Nunokawa et al. do not expressly disclose that the step of generating the test pattern comprises:

displaying a plurality of bi-directional print modes available to the printing apparatus based on the information read out from the memory and allowing a user to select a bi-directional print mode out of the plurality of available bi-directional print modes.

However, Ohtsuka et al. disclose a step of generating a test pattern that comprises:

displaying a plurality of bi-directional print modes available to the printing apparatus based on the information read out from the memory (col. 21, lines 22-26, 44-45) and allowing a user to select a bi-directional print mode out of the plurality of available bi-directional print modes (col. 21, lines 45-48).

Art Unit: 2861

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to perform the step of displaying a plurality of bi-directional print modes available to the printing apparatus based on the information read out from memory, such as disclosed by Ohtsuka et al., into the invention of Nunokawa et al. The motivation for doing so, as taught by Ohtsuka et al., is to produce a high-quality image by using a print mode in accordance with the type of ink (col. 5, lines 8-11).

Claims 6, 7, and 23 are rejected under 35 U.S.C. 103(a) as being obvious over Nunokawa et al. (US 6962404 B2) in view of Fuse (US 5539434).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claims 6 and 23:

Nunokawa et al. disclose all claimed limitations except that the step of selecting a position adjustment value includes using a preset standard value when the position adjustment value for a third bi-directional print mode to be used by the printing apparatus is not prepared in advance.

However, Fuse discloses using a preset standard value (default values) when a position adjustment value storage does not store the position adjustment value for the print mode used by the printing apparatus (col. 10, line 66 – col. 11, line 16 and Fig. 7).

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to perform the step of using a preset standard value when a position adjustment value for a third bi-directional print mode is not prepared in advance into the invention of Nunokawa et al. The motivation for doing so, as taught by Fuse, is so that the maximum print width may be used, allowing for printing operations with high efficiency (col. 11, lines 17-22).

Regarding claim 7:

Nunokawa et al. disclose all claimed limitations except that the step of selecting a position adjustment value includes using the position adjustment value for another bi-directional print mode when the position adjustment value for a third bi-directional print mode to be used by the printing apparatus is not prepared in advance.

However, Fuse discloses using a position adjustment value (default value) for another bi-directional print mode when the position adjustment storage does not store the position adjustment value for the bi-directional print mode used by the printing apparatus (col. 10, line 66 – col. 11, line 16 and Fig. 7 show that the default values are used for any print mode; thus the default values are used for another print mode).

Art Unit: 2861

Claims 8 and 25 are rejected under 35 U.S.C. 103(a) as being obvious over Nunokawa et al. (US 6962404 B2) in view of Sievert et al. (US 6883892 B2).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claim 8:

Nunokawa et al. disclose all claimed limitations except that the step of selecting a position adjustment value includes outputting a warning when the position adjustment value for a third bi-directional print mode to be used by the printing apparatus is not prepared in advance.

However, Sievert et al. disclose outputting a warning (message of block 202 in the calibration procedure of Fig. 4) when calibration is needed – i.e. when position adjustment values are not prepared in advance (col. 7, lines 16-31).

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to perform the step of outputting a warning when a position adjustment value for a third bi-directional print mode is not prepared in advance into the invention of Nunokawa et al. The motivation for doing so, as taught by Sievert et al., is to produce a calibration page and calibration data when calibration is needed (col. 7, lines 8-15).

Regarding claim 25:

Nunokawa et al. disclose all claimed limitations except the steps of:

outputting a warning when no first position adjustment value is stored; and

outputting a warning when no second position adjustment value is stored.

However, Sievert et al. disclose outputting warnings (message of block 202 in the calibration procedure of Fig. 4) when calibration is needed – i.e. when position adjustment values are not stored (col. 7, lines 16-31).

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. in view of Ohtsuka et al. (US 6145950).

Regarding claim 12:

Takahashi et al. disclose all the limitations of claim 11, as well as the limitation that the test pattern generator generates the test pattern suitable for the bi-directional print mode selected via the position adjustment value setter (col. 43, lines 23-28); and

a selected bi-directional print mode is subject to setting of the position adjustment value out of the plurality of available bi-directional print modes (col. and col. 43, lines 33-41).

Takahashi et al. do not expressly disclose that the ink cartridges comprise a memory that stores information including types of contained inks;

that the printing apparatus comprises a reader for reading out information stored in the memory; or

that the position adjustment setter displays a plurality of bi-directional print modes available to the printing apparatus based on information read out by the reader and allow a user to select a bi-directional print mode to be subject to setting of the position adjustment value out of the plurality of available bi-directional print modes.

However, Ohtsuka et al. disclose ink cartridges that comprise a memory (electrical pads 1-3) that stores information including types of contained inks (ID information);

a printing apparatus that comprises a reader (contact 71) for reading out information stored in the memory (col. 9, lines 1-6); and

displaying a plurality of bi-directional print modes available to the printing apparatus based on information read out by the reader (col. 21, lines 22-26, 44-45) and allow a user to select a bi-directional print mode (col. 21, lines 45-48).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize cartridges with memories to determine the available print modes into the invention of Takahashi et al. The motivation for doing so, as taught by Ohtsuka et al., is to produce a high-quality image by using a print mode in accordance with the type of ink (col. 5, lines 8-11).

Regarding claim 13:

Takahashi et al. disclose all the limitations of claim 9, as well as the limitation that the position adjustment value setter (controller 100) sets the position adjustment value based on the print mode (col. 43, lines 33-41).

Art Unit: 2861

Takahashi et al. do not expressly disclose that the ink cartridge comprises a memory that stores information used to set the position adjustment value; or that the printing apparatus further comprises:

a reader that reads out the information from the memory, wherein a print mode is set based on the information read out from the memory.

However, Ohtsuka et al. disclose an ink cartridge (ink cartridge 1) that comprises a memory (electrical pads 1-3) that stores information (ID information) used to set the position adjustment value (col. 7, lines 62-64); and a printing apparatus that comprises:

a reader (obvious to Fig. 1) that reads out the information from the memory (col. 9, lines 1-6), wherein a print mode is set based on the information read out from the memory (col. 21, lines 22-26).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (US 6532026 B2) in view of Fuse (US 5539434).

Regarding claim 14:

Takahashi et al. disclose all claimed limitations except that the position adjuster uses a preset standard value when the position adjustment value storage does not store the position adjustment value for the bi-directional print mode used by the printing apparatus.

However, Fuse discloses using a preset standard value (default values) when the position adjustment value storage does not store the position adjustment value for the print mode used by the printing apparatus (col. 10, line 66 – col. 11, line 16 and Fig. 7).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize preset standard values when the position adjustment value storage does not store

Art Unit: 2861

the position adjustment value into the invention of Takahashi et al. The motivation for doing so, as taught by Fuse, is so that all of the nozzles may be used, which will allow printing operations with high efficiency (col. 11, lines 17-22).

Regarding claim 15:

Takahashi et al. disclose all claimed limitations except that the position adjuster uses the position adjustment value for another bi-directional print mode when the position adjustment storage does not store the position adjustment value for the bi-directional print mode used by the printing apparatus.

However, Fuse discloses using the position adjustment value (default values) for another bi-directional print mode when the position adjustment storage does not store the position adjustment value for the bi-directional print mode used by the printing apparatus (col. 10, line 66 – col. 11, line 16 and Fig. 7 show that the default values are used for any print mode; thus the default values are used for another print mode).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (US 6532026 B2) in view of Sievert et al. (US 6883892 B2).

Regarding claim 16:

Takahashi et al. disclose all claimed limitations except that the step of selecting a position adjustment value includes outputting a warning when the position adjustment value for a third bi-directional print mode to be used by the printing apparatus is not prepared in advance.

However, Sievert et al. disclose outputting a warning (message of block 202 in the calibration procedure of Fig. 4) when a position adjustment value for a third bi-directional print

Art Unit: 2861

mode is not prepared in advance (col. 7, lines 16-31 show that when calibration is needed – i.e. adjustments are not prepared in advance - a warning is output).

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to perform the step of outputting a warning when a position adjustment value for a third bi-directional print mode is not prepared in advance into the invention of Takahashi et al. The motivation for doing so, as taught by Sievert et al., is to produce a calibration page and calibration data when calibration is needed (col. 7, lines 8-15).

Response to Arguments

Applicant's arguments with respect to claims 1, 9, 17, and 18 have been considered but are moot in view of the new ground(s) of rejection. Please see the above rejections to claims 1, 17, and 18 that are based on the disclosure provided by Nunokawa et al., which teaches selectably mounting a first ink set or a second ink set, wherein the selectable mounting comprises replacing a first ink tank of the first ink set with a second ink tank of the second ink set, thereby changing from the first ink set to the second ink set without replacing the print head which is fixed to the printer, wherein the second ink tank of the second ink set contains ink having the same hue but different density as ink of the first ink tank of the first ink set.

Please see the above rejection to claim 9 that is based on the disclosure provided by Takahashi et al., which teaches all the structural limitations of the claimed printing apparatus.


Communication with the USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shelby Fidler whose telephone number is (571) 272-8455. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shelby Fidler
Patent Examiner
AU 2861



MATTHEW LUU
SUPERVISORY PATENT EXAMINER